FLEYSHER, Solomon Meyyerovich; POTKYASAY, V.F., red.; SHIROKOVA, M.M., tekhn. red.

[New developments in tube-type radio receivers] Novoe v lampovykh radioveshchatel'nykh priemnikakh. Moskva, Gosenergoizdat, 1961. 167 p. (Massovaia radiobiblioteka, no.417) (MIRA 15:7)
(Radio--Receivers and reception)

YAKUBASHK, Gagen [Jakubaschk, Hagen]; FLEYSHER, S.M.,[translator];
KOROL'KOV, V.G., red.; YEMZHIN, V.V., tekhn. red.

[Magnetic tape-recording techniques]Praktika magnitnoi zvukozapisi. Moskva, Gosenergoizdat, 1962. 31 p. (Massovaia radiobiblioteka, no.435) (MIRA 15:11)
(Magnetic recorders and recording)

FLEYSHER, Solomon Meyerovich; SHIROKOVA, M.M., tekhn. red.

[Automatic tuning of radio receivers] Avtomaticheskaia nastroika radiopriemnika. Moskva, Gosenergoizdat, 1963. 15 p. (Massovaia radiobiblioteka, no.450) (MIRA 16:6)
(Radio--Receivers and reception)

L 59008-65 EEO-2/EWT(d)/EED-2 Pn-4/Pj-4

ACCESSION NR: AR5015995 UR/0058/65/000/005/H026/H026

SOURCE: Ref. zh. Fizika, Abs. 5Zh187

AUTHOR: Fleysher, S. M.

TITLE: Interference immunity of a receiver for signals of unknown form

CITED SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 21, 1964, 11-18

TOPIC TAGS: interference immunity, optimal receiver, self adaptive system, self organizing receiver

TRANSLATION: The author determines the interference immunity of an optimal self-organizing receiver for repetitive signals of unknown form, and also the thresholds necessary during each step of self adaptation. It is shown that the proposed linear receiver is sufficiently close to optimal.

SUB CODE: EC ENCL: 00

Card 1/1

FLEYSHER, S.M.

Detection of random signals with normal distribution.
Radiotekh. i elektron. 10 no.11:2056-2059 N '65.
(MIRA 18:11)

L 11555-66 EWT(d)/FSS-2

ACC NR: AR5027551 SOURCE CODE: UR/0274/65/000/008/A005/A006

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 8A47

AUTHOR: Fleysher, S. M.

TITLE: Noise rejection in a receiver of unknown-shape signals

CITED SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, 1964, vyp. 21, 11-18

TOPIC TAGS: signal reception, signal noise separation, adaptive receiver, receiver selectivity, radio receiver, radar receiver

TRANSLATION: Operation of a self-organizing receiver is evaluated; the receiver changes its structure and parameters according to the arriving signal shape in such a way that, at each stage of its self-organization, an optimal or near-optimal reception is ensured. The receiver can perform both linear and square-law treatment of the arriving signal-and-noise mixture. When a signal with unknown arrival time is detected, the signal-absence decision is made if the likelihood-ratio logarithm is lower than a certain threshold. Initially, the optimal receiver presupposes the distribution of duration to be uniform and acts as a square-law detector with a

UDC: 621.391.17

Card 1/2

L 11555-66

ACC NR: AR5027551

subsequent integration and a simultaneous evaluation of signal v_i components in the total signal v(t): $\overline{v_i = \int_0^T V(t)\,\varphi_i(t)\,dt}$, where $\varphi_i(t)$ are the functions orthogonal within interval (O, T). The next signal is received in a combined way, assuming that the signal has normal distribution. Further on, the receiver structure remains unchanged and, ultimately, the receiver turns itself into a filter matched for an exactly known signal. Bib 4, figs 2.

SUB CODE: 17

HW

Card 2/2

L 29583-66 EWT(d)
ACC NR: AR6012289 SOURCE CODE: UR/0274/65/000/010/A004/A004

42
B

AUTHOR: Fleysher, S. M.

TITLE: Reception of repetitive signals of unknown shape

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 10A31

REF SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 22, 1964, 43-50

TOPIC TAGS: signal reception, radar receiver, radar detection

ABSTRACT: A possibility is considered of designing a linear receiver for reception of unknown-shape signals with an additive noise as a background. The noise is assumed to be stationary with an arbitrary distribution and known mathematical expectation and dispersion. A block diagram is shown of a self-organizing receiver for which formulas are developed for the probabilities of false alarm and correct detection; the formulas show that the above linear receiver is close to the optimal but has an essentially simpler structure. In the beginning, the receiver performs a noncoherent optimal detection using an additional channel. After the first signal has been detected, the additional channel is turned off, and the control is carried out by the linear-receiver output. Three figures. Bibliography of 4 titles. L. S. [Translation of abstract]

SUB CODE: 17

Card 1/1 CC UDC: 621.391.16

L 08328-67

ACC NR: AR6033798 SOURCE CODE: UR/0058/66/000/007/H013/H013

26

AUTHOR: Fleysher, S. M.

TITLE: Total probabilities of errors in the discovery of a self-organizing receiving unit and characteristics of the self-organizing process

SOURCE: Ref. zh. Fizika, Abs. 7Zh92

REF SOURCE: Tr. Nauchno-tekhn. konferentsii Leningr. elektrotekh. in-ta svyazi, vyp. 2, 1965, 39-50

TOPIC TAGS: error, receiver characteristic, error probability

ABSTRACT: Correlations determining the total probabilities of errors in the appearance of a self-organizing receiver have been obtained. Some criteria characterizing the self-organizing process are introduced for examination. [Translation of abstract]

SUB CODE: 17/

Card 1/1 nst

L 41110-66 EWT(d)/FSS-2

ACC NR: AR6014595 SOURCE CODE: UR/0274/65/000/012/A004/A004

AUTHOR: Fleysher, S. M.

TITLE: Optimal self-organized receiver and the conditional probabilities of detection errors

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 12A37

REF SOURCE: Tr. Uchebn. in-tov svyazi, vyp. 25, 1965, 11-18

TOPIC TAGS: radio receiver, interference reduction

ABSTRACT: The structure and probability of detection errors are determined for an optimal self-organized receiver of recurrent signals of unknown form at the (m-M)-th stage of the receiver under the condition that μ false alarms and γ correct detections of signal pulses occurs throughout the m-1 preceding stages. It is shown that the Neumann-Pearson optimizing criterion corresponds best to the problem to be solved since a large weight of false alarms should be given to the initial stage of self-organization. The increase of interference freedom with each correct detection is smaller, the smaller μ and the larger γ. The decrease of interference freedom with each false alarm is larger, the smaller γ. 2 illustrations, bibliography of 3 citations. L. S. [Translation of abstract]

UDC: 621.391.133

Card 1/1 11b

ACC NR: AR6026477 SOURCE CODE: UR/0274/66/000/004/A004/A004

AUTHOR: Fleysher, S. M.

TITLE: Reception of multi-position recurring signals of unknown shape

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 4A28

REF SOURCE: Tr. Uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 26, 1965

TOPIC TAGS: signal reception, signal noise separation, communication system

ABSTRACT: The reception of recurring signals having several unknown shapes is considered. A multi-position communication system may be kept in mind. The signals of the same shape are defined as $f(t) = af_1(t \pm \tau)$; the noise is assumed to be additive, stationary, and normal with a zero mathematical expectation. A block diagram of the system is described in detail, and the probabilities of erroneous decisions in detection are determined. Slightly modified formulas can be used for the case of non-equally probable signals. One figure. Bibliography of 4 titles. L. S. [Translation of abstract]

SUB CODE: 09, 17

Card 1/1 UDC: 621.391.133

ACC NR: AR6035206 SOURCE CODE: UR/0274/66/000/008/A005/A005

AUTHOR: Fleysher, S. M.

TITLE: Total probabilities of error detection of a self organizing receiving device and characteristics of the process of self organizing

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 8A33

REF SOURCE: Tr. Nauchno-tekhn. konferentsii Leningr. elektrotekhn. in-ta svyazi, vyp. 2, 1965, 39-50

TOPIC TAGS: probability, error, signal reception, ~~receiving device~~ radio receiver

ABSTRACT: Relationships are obtained for determining the total probabilities of error detection of a self-organizing receiving device. Some criteria characterizing the process of self-organizing are introduced in the investigation. Author's summary. [Translation of abstract] [NT]

SUB CODE: 17/

Card 1/1 UDC: 621.391.161

SHAKHNAZAROV, A.B., professor; FLEYSHER, V.G., assistant.

Sarcoid which simulates sarcoma of the skin. Vest.ven.i derm. no.5: 48-49 S-O '53. (MLRA 6:12)

1. Iz kafedry vnutrennikh bolezney Krymskogo meditsinskogo instituta. (Skin--Tumors)

BONDAREV, N.N., inzhener; FLEYSHER, V.G.

Flashing signal device with a breaker employing photoresistors.
Svetotekhnika 2 no.6:19-21 N '56. (MLRA 9:12)

1. Leningradskiy zavod elektricheskikh chasov.
(Signals and signaling)

24(5)

AUTHORS: Berlovich, E. Ye., Fleysher, V. G., Breslav, V. I., Preobrazhenskiy, B. K.

SOV/56-36-5-57/76

TITLE: The Quadrupole Moment of the Er^{168}-Nucleus
(Kvadrupol'nyy moment yadra Er^{168})

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1589-1590 (USSR)

ABSTRACT: The 80 kev level of Er^{168} formed in the K-capture in Tu^{168} has already been identified as the first level of the rotation band. Measurements of the lifetime of this level carried out by the authors also permit determination of the quadrupole moment and the deformation parameter of the Er^{168}-nucleus according to Bohr's formulas of the generalized nuclear model. The authors investigated the weak Tu^{168}-source which they obtained by constant irradiation of tantalum by 660 Mev protons on the synchrocyclotron of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) by means of a device already described in an earlier paper (Ref 4). The coincidence

Card 1/3

curves obtained are shown by a figure; the two curves correspond to the coincidence of the X-rays accompanying K-capture and of the conversion electrons formed in transitions from the 80 kev level. For the half life of this level $(1.8\pm0.3).10^{-9}$ sec is obtained. By considering the conversion on all shells (the values of the conversion coefficients are taken from references 5 and 6) $T_{\gamma} = (1 + \alpha)T_{exp} = (15\pm2.5).10^{-19}$ sec is obtained for the radiation half-life ; α denotes the total conversion coefficient. The external quadrupole moment Q is found to amount to $Q = (7.6\pm0.6).10^{-24} cm^2$, and the deformation parameter: 0.32 ± 0.03. This value, which was determined from lifetime, agrees well with that determined from Coulomb excitation. There are 1 figure and 7 references, 4 of which are Soviet.

ASSOCIATION: Leningradskiy Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physico-Technical Institute of the Academy of Sciences, USSR)

FLEYSHER, V. G.

"On the Problem of the Prehypertension Condition." Cand Med Sci, Crimean Medical Inst, Simferopol', 1953. (RZhBiol, No 5, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

S/120/62/000/002/027/047
E032/E414

AUTHOR: Fleysher, V.G.

TITLE: Determination of the efficiency of electron multipliers without measuring small particle fluxes

PERIODICAL: Pribory i tekhnika eksperimenta, no.2, 1962, 115-119

TEXT: The usual methods of measuring the efficiency of photomultipliers involve the determination of the (low) current to the first dynode. In the present method this type of measurement is unnecessary. The method involves the determination of three quantities namely: (1) the average amplitude due to a single electron ejected from the photocathode; (2) the average amplitude of the output pulses (at the collector) and (3) the secondary emission coefficient at the first dynode. The theory of the method is developed and is based on the assumption that the reduction in the efficiency is due to (1) the statistical nature of the photo-effect and the secondary emission effect, and (2) the necessity of introducing a discriminator in order to cut off noise (low amplitude pulses). The method is suitable for use with monochromatic particles.

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It turns out that in the low energy range rating the relationship between the average amplitude and the energy in the case of scintillation counters is nonlinear. There are 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Physicotechnical Institute AS USSR)

SUBMITTED: July 28, 1961

34170
S/048/62/026/002/004/032
B101/B102

24.6210

AUTHORS: Badenko, I. I., Berlovich, E. Ye., and Fleysher, V. G.

TITLE: Slow electrons in the β^--decay of P^{32}

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 2, 1962, 197-201

TEXT: The ionization of the atomic shell in the β^--decay of P^{32} was examined. Slow electrons were recorded by a louver-type electron multiplier (EM) with 18 CuBe-alloy dynodes (amplification factor $\sim 10^5$). β-particles were recorded with an anthracene crystal, the scintillation pulses of which were fed to a photoelectric multiplier (PEM) through a light pipe. The energy of ionization electrons was determined by means of a retarding field. The pulses of EM and PEM were fed to a gate circuit with a time resolution of 0.5 μsec. The measurements were made at $1 \cdot 10^{-5}$ mm Hg. Sources: (1) a monomolecular cetyl phosphate source (activity ~ 0.003 μc per cm^2, layer thickness on collodion film $< 50\ \mu g \cdot cm^{-2}$);

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Slow electrons in the...

(2) a source obtained by boiling down a solution containing PO_4^{3-} and PO_3^- ions, enriched with P^{32} according to V. N. Nefedov et al. (Radiokhimiya, 1, 236 (1959)) (activity ~0.7 μc, layer thickness $<10\ \mu g \cdot cm^{-2}$). Coincidences of beta particles with slow electrons (< 10 ev) were observed with both sources (Fig. 2). No coincidences took place when the active surface of the source faced the crystal. They did not change if the distance between the source and the first dynode was extended to 25 cm. Hence, there were no negative ions, but only ionization electrons knocked out of the outer shell. The M-electrons of phosphorus participate in the chemical binding with the four oxygen atoms of cetyl phosphate. Four σ bonds and one π bond are formed. $Z_{eff} < 5.4$ is found when allowing for σ-electron shielding and for the K- and L-shell electrons. The probability of outer shell ionization follows therefrom, calculated on the basis of hydrogen-like protons >3.5 % (experimental finding: 9 %). Electrons of more than 10 ev were not observed. Hence, $W_L < 1$ %, which differs from A. B. Migdal's results (Zh. eksperim. i teor. fiz., 10, 207 (1951)). The data allow the contribution of field-induced emission to be

Card 2/3

Slow electrons in the...

estimated. Ye. L. Feynberg (Dokl. AN SSSR, 23, 778 (1939)) is mentioned. There are 2 figures and 14 references: 4 Soviet and 10 non-Soviet. The four most recent references to English-language publications read as follows: Boehm, F. W., Wu, C. S., Phys. Rev., 93, 518 (1954); Starfelt, N., Cederlund, J., Phys. Rev., 105, 241 (1957); Miskel, J. A., Perlman, M. L., Phys. Rev., 94, 1683 (1954); Schwartz, H. M., J. chem. Phys., 21, 45 (1953).

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

Fig. 2. Number of β^- e coincidences as a function of the stopping potential. (1) Monomolecular source. (2) Source obtained by evaporation. The scale of the ordinate axis differs for (1) and (2). (3) Number N_{e_T} of thermal electrons (emitted from tungsten wire) passing through the barrier grids as a function of the grid potential.

Legend: abscissa: V_{stop}; ordinate: N_{coinc} and N_{e_T} in arbitrary units.

Card 3/3

S/120/62/000/005/032/036
E075/E436

AUTHORS: Badenko, I.I., Fleysher, V.G.

TITLE: Monomolecular source P^{32}

PERIODICAL: Pribory i tekhnika eksperimenta, no.5, 1962, 179-180

TEXT: A possibility was investigated of preparing a monomolecular source of a known structure with weakly bounded active atoms. A monoester of cetyl alcohol and orthophosphoric acid containing P^{32} was prepared and spread on the surface of water contained in a Langmuir trough. The monomolecular layer formed was compressed by an "oil piston" of castor oil. The monolayer was then transferred onto a collodion film held in a frame. The area occupied by the monolayer on the water surface decreased under the action of the "oil piston" by an amount equal to the area of the monolayer deposited on the collodion film. The authors investigated the activity of sources obtained by a single or multiple deposition of monolayer, by placing the collodion films in a liquid scintillator, where the absolute activity was measured in 4π-geometry. For the original activity of standard orthophosphoric acid of about 1 m curie/mg for P, monomolecular sources were obtained with the activity of 0.003 m curie per 1 cm^2.

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Monomolecular source P^{32}

S/120/62/000/005/032/036
E075/E436

The molecular area for one molecule in the monolayer was found to be about 100 A^2. The method permits the attachment of active atoms to solid surfaces by relatively "thin threads". The sources obtained in this way may be utilized for experiments with recoil nuclei and soft electrons. There is 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Physico-technical Institute AS USSR)

SUBMITTED: July 28, 1961

Card 2/2

BADENKO, I.I.; BERLOVICH, E.Ye.; FLEYSHER, V.G.

Slow electrons in β^--decay of P^{32}. Izv. AN SSSR. Ser. fiz. 26 no.2:197-201 F '62. (MIRA 15:2)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR.
(Beta rays—Decay)
(Phosphorus—Isotopes)
(Electrons)

FLEYSHER, V.G.

Reducing the background of random coincidences by means of consecutive pulse selection. Prib. i tekh. eksp. 8 no.5:112-113 S-O '63. (MIRA 16:12)

1. Fiziko-tekhnicheskiy institut AN SSSR.

ovich, E. Ye.; Kutsentov, L. M.; Fleysher, V

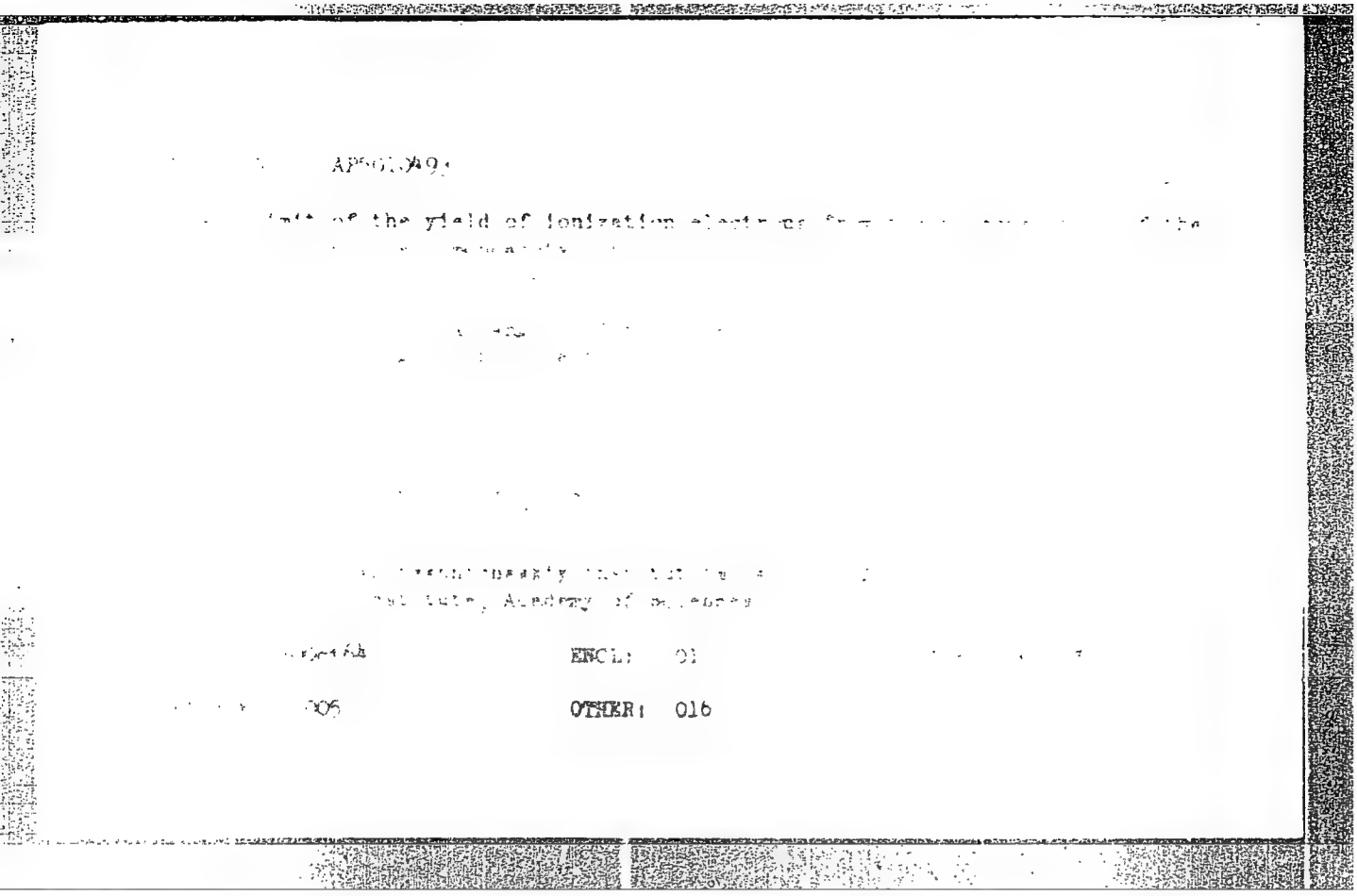
of the "jolting" of electron

eksperimental'noy i teoreticheskoy

onization, Beta decay, electron shell, phosphorus, surface activity,
d, oriented molecule, monomolecular layer

The authors studied the β-decay-induced ionization of the outer electron

Card 1/2



ENCL: 01

OTHER: 016

L 22896-66 EWT(l)/EWT(m)/EWA(d)/T IJP(c) AT

ACC NR: AP6006873 SOURCE CODE: UR/0181/66/008/002/0616/0619

AUTHOR: Fleysher, V. G. +B

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Range and probability of emission of slow electrons produced when Beta particles pass through a hydrocarbon medium 21, 44, 55

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 616-619

TOPIC TAGS: Beta particle, electron emission, Beta interaction, phosphorus compound, hydrocarbon, probability

ABSTRACT: The article deals with the "jolt" electrons which can be emitted in the radioactive decay of P^{32}, the theory of which was described by the author elsewhere (with I. I. Badenko and E. Ye. Berlovich, Izv. AN SSSR ser. fiz. v. 26, 197, 1962). The "jolting" of the electron shell during radioactive decay is used in this experiment to determine the probability of passage of the emitted slow electrons through $C_{16}H_{33}OPO(OH)_2$. The hydrocarbons form long chains of molecules with surface-active properties, which can be deposited layer by layer and thus control the distance from the beta emitter to the surface. This makes it possible to

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L 22896-66
ACC NR: AP6006873

locate the P^{32} at a specified distance from the surface and observe the slow electron outside the source. An expression is given for the probability of observing the slow electron outside the source when a beta particle is emitted at a specified angle to the surface, and the components of the probability are measured in terms of the coincidences of the beta particles (registered by a scintillation detector) and the slow electrons (registered with a multiplier with open input). The probability of passage through the potential threshold on the surface is found to be 0.65 ± 0.11. Orig. art. has: 2 figures and 4 formulas.

SUB CODE: 20/ SUBM DATE: 29Jun65/ ORIG REF: 004/ OTH REF: 002

Card 2/2 BLG

KUTUZOV, V.; FLEYSHER, Ye.

Ultrashortwave amateurs prepare for the competitions. Radio no.5:9 My '56. (MLRA 9:7)

1.Nachal'nik Khar'kovskogo oblastnogo radiokluba (for Kutuzov).
2.Predsedatel' sektsii ul'trakorotkoy volny Rostovskogo radiokluba (for Fleysher).
(Radio, Shortwave--Competitions)

AVRASIN, T.; FLEYSHER, Ye.

Let's improve the organization of marketing research. Sov.torg 34 no.3:12-16 Mr '61. (MIRA 14:2)
(Marketing research)

FLEYSHER, Ye.

Problems that await solution. Sov. torg. 35 no.3:10-13 Mr '62. (MIRA 15:3)

(Clothing industry)

FLEYSHMAN, Ye.V.

Sensitivity of the adrenal cortex to exogenous ACTH in patients having had a prolonged treatment with corticosteroid hormones. Trudy TSIU 77:44-48 '65. (MIRA 18:9)

1. III kafedra terapii (zav. deystvitel'nyy chlen AMN SSSR prof. I.A. Kassirskiy) TSentral'nogo instituta usovershenstvovaniya vrachey.

FLEYSHER, Ye. (Rostov-na-Donu)

Method of mixing paint. Radio no.7:51 Jl '56. (MLRA 9:9)
(Paint mixing)

FLEYSHER, Ye. (Rostov-na-Donu)

Simple method for making photocopies. Radio no.7:51 Jl '56.
(Lumiprints) (MLRA 9:9)

107-57-1-59/60

AUTHOR: Fleysher, Ye. (Rostov-na-Donu)

TITLE: Steel Wire for a Soldering Iron. Experience Exchange (Obmotka dlya payal'nika iz zhil stal'nogo trosa. Obmen opytom)

PERIODICAL: Radio, 1957, Nr 1, p 64 (USSR)

ABSTRACT: As nickel-chrome wire is often unavailable in Soviet rural areas, the author suggests using steel wires unwoven from a stranded steel rope, for an electric soldering iron. He reports 3 years of successful experience with such a remodeled soldering iron.

AVAILABLE: Library of Congress

Card 1/1

107-57-4-40/54

AUTHOR: Fleysher, Ye. Ya. (Rostov-na-Donu)

TITLE: Restoration of a "Moire" or a "Frost" Finish.. Experience exchange (Vosstanovleniye pokrytiy "muar" ili "moroz." Obmen opytom)

PERIODICAL: Radio, 1957, Nr 4, p 48 (USSR)

ABSTRACT: The dusty surface of a device that has a "moire" or a "frost" finish should be wiped with a dry piece of cloth and then with a piece of cloth dipped in a transformer or spindle oil. The excess oil should be removed from the surface by a pad dipped in gasoline. A solution of celluloid in acetone can be used as a lacquer dust protection.

Card 1/1

NEDOPEKIN, G.K., inzh.; TRUBIKHIN, M.G., kand.ekon.nauk; FLEYSHMA, F.M., ekonomist.

For a thorough study of economic problems ("Business accountability and railroad finance." Reviewed by G.K.Nedopekin, M.G.Trubikhin, F.M.Fleishman). Zhel.dor.transp. 42 no.3:92-96 Mr '60. (MIRA 13:6)

(Railroads--Finance)

FLEYSHMAKHER, A., inzhener.

Transportation of loose flour in trucks. Avt.transp. 32 no.4:6-7 Ap '54. (MLRA 7:6)

1. Promzernoproyekt.
(Flour--Transportation) (Motor trucks)

FLEYSHMAKHER, A.M.

Operations of gas-regulator stations. Metallurg 6 no.3:36 Mr '61. (MIRA 14:5)

1. Master gazoregulirovochnykh punktov prirodnogo gaza zavoda imeni Il'icha.

(Gas, Natural)
(Gas Governors)

SHAMARDIN, N. N.; GORSHKOV, V. A.; FLEYSHMAKHER, E. G.

"Public gas supply and the operation of municipal gas distribution systems in the USSR."

Report to be presented at the 9th Intl. Gas Conference, The Hague, 1-4 Sept 1964.

FLEYSHMAKHER, I.M.

Use of a quick setting plastic in applying prosthesis to an edentulous maxilla with a defect in the hard palate originating from a gunshot wound. Stomatologiia 39 no.6:58-59 N-D '60. (MIRA 15:1)

1. Iz sanatoriya "Rodina" v Kislovodske (glavnyy vrach V.S.Vasil'yeva).
(PLASTICS IN MEDICINE) (DENTAL PROSTHESIS)

FLEYSHMAKHER, I.M.

Treatment of paradentosis by the method of nasal electrophoresis.
Stomatologiia 42 no.3:92-93 My-Je '63 (MIRA 17:1)

FLEYSHMAN, A.

We increase the output of whole milk products. Moloch. prom. 18 no.4: 37 '57. (MLRA 10:4)

1. Kirovogradskiy molochnyy zavod.
(Dairy products)

IVANOV, Nikolay Vasil'yevich; MALYUTIN, Nikolay Kuz'mich; FLEYSHMAN, Abram L'vovich; BURSHTEYN, I.I., retsenzent; LOBODIN, P.V., retsenzent; MOROZOV, A.N., retsenzent; LYUBOVICH, Yu.O., kandidat ekonomicheskikh nauk, redaktor; TEMKIN, A.V., tedaktor izdatel'stva; UVAROVA, A.F., tekhnicheskiy redaktor.

[Supply of materials and equipment in machinery manufacturing] Material'no-tekhnicheskoe snabzhenie v mashinostroenii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1956. 275 p. (MLRA 10:4)
(Machinery industry)

IVANOV, N.V.; MALYUTIN, N.K.; FLEYSHMAN, A.L.; KARPOV, P.P., inzh., retsenzent; SAUTIN, I.A., ekonomist, retsenzent; SHUBNIKOV, A.K., prof., doktor tekhn.nauk, red.; TKOCHUN, A.I., red.izd-va; UVAROVA, A.F., tekhn.red.

[Supplying industries of regional economic councils with materials and equipment] Material'no-tekhnicheskoe snabzhenie promyshlennosti sovnarkhozov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1961. 307 p. (MIRA 14:6)
(Industrial procurement)

FLEYSHMAN, B.A., dotsent

Results of experimental coal loading without the use of bunkers in some Kuznetsk Basin mines. Trudy NIIZHT no.25:47-74 '61. (MIRA 16:11)

OGORODNIK, N.I. (g.Novosibirsk); FLEYSHMAN, B.A., dotsent (g.Novosibirsk); KRESTENKO, N.I. (g. Novosibirsk)

Traffic flow organization on the Tomsk Railroad. Zhel.dor. transp. 43 no.2:28-33 F '61. (MIRA 14:4)

1. Nachal'nik sluzhby dvizheniya Tomskoy dorogi (for Ogorodnik).
2. Glavnyy inzh.sluzhby dvizheniya Tomskoy dorogi (for Krestenko).
(Railroads—Rolling stock) (Railroads—Traffic)

MARIN, N.V. (Novosibirsk); BESHKETO, V.K., kand.tekhn.nauk (Novosibirsk); FLEYSHMAN, B.A., dotsent (Novosibirsk)

Important features of the preparation for mass transportation of grain. Zhel.dor.transp. 44 no.6:33-37 Je '62. (MIRA 15:8)

1. Glavnyy inzh. gruzovoy sluzhby Zapadno-Sibirskoy dorogi (for Marin). 2. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta (for Fleyshman).
(Siberia--Grain--Transportation) (Railroads--Freight)

TRUBNIKOV, I.Ye.; OGORODNIK, N.I.; FLEYSHMAN, B.A., dotsent;
MOSKALEV, P.I., dotsent

What are the advantages of concentrated classification operations? Zhel. dor. transp. 46 no.7:32-37 Jl '64.
(MIRA 17:8)

1. Zamestitel' nachal'nika Zapadno-Sibirskoy dorogi (for Trubnikov). 2. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta (for Fleyshman, Moskalev).

KUPRIYANOV, A.P., inzh. (Novosibirsk); FLEYSHMAN, B.A., dotsent (Novosibirsk)

What delays the turnover of the approach tracks to the railroad administration? Zhel. dor. transp. 46 no.10:40-44 O '64. (MIRA 17:11)

1. Nachal'nik planovo-ekonomicheskogo otdela Zapadno-Sibirskoy dorogi (for Kupriyanov). 2. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta (for Fleyshman).

FLEYSHMAN B.S.

AUTHOR: FLEYSHMAN,B.S. 109-6-6/17

TITLE: On an Optimum Detector with log I_0 Characteristics for the Detection of Weak Signals in Noise. (Ob optimal'nom detektore s log I_0-kharakteristikoy dlya obnaruzheniya slabogo signala pri naliohii shuma, Russian)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol 2, Nr 6, pp 726-734 (U.S.S.R.)

ABSTRACT: The calculation of the characteristics of an optimum log I_0 detector is carried out.
Similar papers by other authors contain inaccurate calculations, as, when decomposing log $I_0(x)$ they take only the quadratic term into account as e.g. with W.W.PETERSON, T.G.BIRDSALL, W.G.FOX: "The theory of signal detectability", TIRE J.T.1954, 4, 171-212 and D.MIDDLETON: "Statistical criteria for detection of pulsed carriers in noise", J. of Appl.Phys. 1953, 24, 4, 371-391. J.J.BUSSGANG, and D. MIDDLETON in "Optimum sequential detection of signals in noise", TIRE, J.T. 1955, 1, 3, 5, 5-18, refer to their unpublished work and mention only the correct final value of the parameters of an optimum log I_0 detector

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109-6-6/17

On an Optimum Detector with log I_0 Characteristics for the Detection of Weak Signals in Noise.

without giving any proof. This result was obtained by them under more special conditions than was the case with the present paper. (With 1 Illustration and 2 Slavic References).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 23.7.1956
AVAILABLE: Library of Congress

Card 2/2

FLEYSHMAN, B.S.

Combinatorial analysis of distributions. Uch. zap. MOPI 57 no.4:173-198 '57. (MIRA 11:6)
(Probabilities)

FLEYSHMAN, B. S.

A. E. Basharinov, B. S. FLEYSHMAN, "Use of the sequential analysis method in apparatus to detect weak signals in noise." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep. 58

The effictiveness of using sequential analysis methods in apparatus to detect weak signals in a noise background is analyzed.

Calculations are made of the average duration of the accumulation in coherent signals and also for incoherent systems in the cases of signals of constant intensity and fluctuating signals.

The economy of the delay time to present information is determindd in comparison with the accumulation region for a single-threshold analyzer.

An experimental method is developed to measure the distribution function of the duration of the accumulation process with a sequential type analyzer.

Experimental results of measurements of the average duration of the accumulation and of the variance of the duration in a binary processing system are presented.

FLEYSHMAN, B. S.

B. S. FLEYSHMAN, "Construction of a code optimum in the Shannon sense in the simplest case of a binary channel with noise." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep. 58

A code, optimum in the Shannon sense, is constructed in the case of a binary symmetric channel. The probability is estimated of obtaining an optimum code by stochastic sampling and the probability of correct decoding for finite n is also estimated.

FLEYSHMAN, B.S.

Optimum-code structure in the simplest case of a binary channel.
Nauch.dokl.vys.shkoly; radiotekh. i elektron,no.1:16-21 '58.
(MIRA 12:1)
1. Institut radiotekhniki i elektroniki AN SSSR.
(Information theory)

FLEYSHMAN, B.S.

Comparing three optimum binary codes of different structure. Nauch.dokl.vys.shkoly; radiotekh. i elektron.no.1:58-62 '58. (MIRA 12:1)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Information theory)

S/044/60/000/012/010/014
C 111/ C 333

AUTHORS: Fleyshman, B. S., Linkovskiy, G. B.

TITLE: The estimation of the maximal possible value of the entropy of an unknown distribution which is represented by some theoretical moments

PERIODICAL: Referativnyy zhurnal, Matematika, no. 12, 1960, 130, abstract 14133. (Sb. tr. Nauchno-tekhn. o-va radiotekhn. i elektrosvyasi im. A. S. Popova, 1958, vyp. 2, 87-99

TEXT: The authors pose the problem of calculating the minimum of the differential entropy of a variable which is given on the interval (a,b) under fixation of some of its moments. The problem is reduced to the solution of a system of transcendental equations with the usual methods of the calculus of variations. The cases, where 1.) the first moment is given, 2.) b = ∞ and the two first moments are given, 3.) a = - ∞, b = - ∞ and a moment of arbitrary order is given, are separately considered. An explicit answer is obtained in the last case.

[Abstracter's note: Complete translation.]

Card 1/1

FLEYSHMAN, B.S.

SOV/142-58-4-29/30

AUTHOR: Stolyarov, A.G.

TITLE: All-Union Session Marking "Radio Day" (Vsesoyuznaya nauchnaya sessiya, posvyashchennaya "Dnyu Radio")

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Radiotekhnika, 1958, Nr 4, pp 517-521 (USSR)

ABSTRACT: During the period May 12-17, 1958, an All-Union Scientific Session was held in Moscow, devoted to "Radio Day". It was organized by the Scientific Technical A.S.Popov Association for Radio-Engineering and Electro-Communications. 280 papers were read at the session, 25 in the field of information theory and more than 20 in the field of electronics, dealing with theoretical/experimental research on electronic equipment. V.I.Siforov spoke on "The Transmission Capacity of Single-Ray and Multi-Ray Communication Canals". L.I.Filippov looked at the potential interference resistance of an ideal radio receiver. D.A.Novik spoke on "The Transmission System of Electric Signals

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by the Optimal Code of Shannon-Fano." A. Ya. Insharinov and B.S.Fleyshman discussed "The Use of the Successive Analysis Method in Equipment for Determining Weak Signals in Noise", and L.M.Fink examined "The Potential Interference Resistance in a Non-Definite Signal Phase". V.A.Kashirin and G.A.Shuatova discussed "The Optimal Parameters of the Tele-measuring System with regard to Interference Resistance". B.S.Fleyshman spoke on the question of creating an optimal code - in the Shannon conception - in the case of a binary symmetrical canal. L.P.Borodin discussed "The Method of Creating Several Codes with a Simple Base". In the field of electronics, P.A.Tarasov spoke on "Broad Band Electron Ray Tubes for Observation and Recording of Electric Impulses and Ultra-High Frequencies" and V.P.Radchenko examined the question of the practical utilization of tubes with a cathode net. G.P.Semenov, V.P.Sazonov, M.M.Shitneva and A.S.Bondarev examined: "Use of the Radiosonde with a High-Ohm Feed for Examining Electromagnetic fields in resonators and wave guides".

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... Yu. Katsman spoke on "The Selection of Oscillatory Energy of an Electronic Current, Modulated According to Density". M.B.Golant discussed a negative clystron with a wide range of electron adjustment. S.I.Bychkov explained the phenomenon of electron displacement and gave an approximate description of the frequency characteristics of the magnetron under conditions of high amplitude oscillations. A.I.Tereshchenko spoke on "The Influence of Various Factors on a Critical Magnetic Magnetron Field with a Grid".

... Lebedev-Karmanov spoke on "Modern Television Stations" and Y.M.Katushkina and Z.I.Model' discussed "Bridge Methods of Combining the Outputs of Several Generators".

... G.Sh.Kevanishvili spoke on "The Theory of Non-Linear Oscillations in Radio Engineering".

... V.A.Khromov and G.L.Suchkin spoke on "The Electro-magnetic Radiation in Systems not Conditioned by the Theory of Reciprocity in the Ultra-High Frequency Range".

SOV-109-3-4-15/28

AUTHORS: Fleyshman, B. S. and Linkovskiy, G. B.

TITLE: Maximum Entropy of an Unknown Discrete Signal with a Given First Moment (Maksimum entropii neizvestnogo diskretnogo raspredeleniya pri zadanii pervogo momenta)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3 , Nr 4, pp 554-556 (USSR)

ABSTRACT: It is assumed that a random function ξ described by the matrix on p 554, where x_i are given and $p_i > 0$, such that the sum of p_i fulfils Eq.(1), has a known first moment, a_1 ; this is expressed by:

$$a_1 = \sum_{i=0}^{i=n-1} x_i p_i \quad . \qquad (2)$$

The entropy of this random function is given by Eq.(3). For

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Maximum Entropy of an Unknown Discrete Signal with a Given First Moment

a given a_1 the entropy has a maximum when the function satisfies Eqs.(7) and (8). If the discrete distribution is such that the terms x_i are given by arithmetic progression, as represented by Eq.(10), the maximum entropy for $n \to \infty$ can be expressed by Eq.(22) or Eq.(24). There are 6 references, 4 of which are Soviet and 2 English.

SUBMITTED: January 3, 1957

1. Radio signals--Mathematical analysis 2. Functions--Applications
3. Arithmetic progressions--Applications

SOV-109-3-6-19/27

AUTHORS: Basharinov, A. Ye. and Fleyshman, B. S.

TITLE: Efficiency of the Sequential Analysis Method in the Devices for the Detection of Weak Signals in Noise (Ob effektivnosti metoda posledovatel'nogo analiza v ustroystvakh obnaruzheniya slabykh signalov v shumakh)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 6, pp 835-839 (USSR)

ABSTRACT: The paper gives the calculated data which characterise the efficiency of various sequential analysers in the range of small errors and the data on the experimental investigation of the distribution of the duration of the analysis. The results are shown in Figs.1, 2 and 4. Fig.1 shows a typical detection characteristic $D(\rho)$ for $F = 10^{-4}$ and $D_1 = .5$ where F is the probability of a false indication (error), D_1 is the probability of a correct detection of a signal of expected intensity, ρ_1 is the expected signal-noise ratio and ρ is the unknown actual value of the signal-noise ratio. The characteristic of the average duration of the number of sampling tests for $D_1 = .5$ and $F = 10^{-4}$ is shown in Fig.2. An experimental curve of $N(\rho)$ is shown

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Efficiency of the Sequential Analysis Method in the Devices for the Detection of Weak Signals in Noise

in Fig.4 together with the calculated results; the crosses denote the experimental points. The measurements were done by means of the equipment shown in the block schematic of Fig.3 consisting of: 1)a noise-voltage generator, 2)a limiter, 3)a modulating pulse generator, 4) a computing device, 5) an integrating counter, 6) an audio-frequency generator, 7) a standard-duration pulse generator and 8) 2 control counters. The authors acknowledge the help extended to them by the Corresponding Member of the Soviet Academy of Sciences Yu. B. Kobzarev. The paper contains 4 figures and 4 English references.

SUBMITTED: October 24, 1957.

Card 2/2

1. Radio signals — Detection 2. Noise (Radio) 3. Pulse generators — Applications 4. Radio receivers — Signal to noise ratio 5. Mathematics — Applications

Fleyshman, B. S.

В. С. Кибзев

О пропускной способности многолучевых каналов.

Ю. М. Мартынов

К теории корректирующих кодов.

10 июня

(с 10 до 16 часов)

А. Е. Башаринов,
Б. С. Флейшман,
Г. С. [illegible]

Метод последовательного анализа в задачах обнаружения сигнала в многоканальных системах.

И. Л. Тепляков

Элементы теории максимальной помехоустойчивости систем с дискретными сигналами.

В. И. [illegible]

О помехоустойчивости одного способа определения [illegible] положения импульсов

Г. А. Сергеев

К вопросу об оптимальной обработке экспериментальных данных.

10 июня

(с 16 до 22 часов)

Ю. С. Лезин

О пороговых сигналах при некогерентном накоплении с экспоненциальной весовой функцией.

В. Е. [illegible]

Новые принципы анализа спектров

Г. А. Медведев

Помехоустойчивость приемника с конечным временем восстановления. Случай простейшего потока мешающих сигналов.

Н. Н. Кузнецов

О помехоустойчивости широкополосного метода передачи телеметрических сообщений

11 июня

(с 10 до 16 часов)

А. Е. Башаринов

Нарастающая вероятность обнаружения импульсного пакета переменной длительности.

Л. Я. Фомин

Идеальные радиоприемные устройства широкополосных сигналов.

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

~~Fleyshman, B.S.~~

Я. И. Хургин

Стационарные импульсные процессы в статистической радиофизике.

11 июня
(с 18 до 22 часов)

М. С. Александров

Распределение разности фаз колебаний в совокупности флюктуирующего сигнала, шумов и коррелированной шумовой [redacted]

Б. С. Флейшман

Некоторые теоремы конструктивной теории информации для дискретного канала с нулевой памятью.

О. С. Шилов

Определение вероятности потерь сообщений в трехкоординатных [illegible] с [illegible] потерями.

Р. Р. Варшамов

Некоторые вопросы теории линейного кодирования.

12 июня
(с 10 до 18 часов)

И. Я. Бобров

Системы передачи дискретных сигналов с фазоразностной манипуляцией.

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Н. М. Теплов

Оптимальный прием сигналов с КИМ с [illegible] стным помехам [redacted]

Г. И. Рубцов,
Г. И. Хавкин

Счет [illegible] входа передачи информации

Г. И. Рубцов,
Г. И. Хавкин

О квантовых флюктуациях электромагнитного поля в связи с проблемой передачи и приема информации

А. А. Сечко

Некоторые соображения по построению преобразователя «ВАЛ-КОД».

12 июня
(с 18 до 22 часов)

В. И. Марков

Групповая передача элементарных сигналов и ее преимущества.

Л. Д. Кловский

Вопросы потенциальной помехоустойчивости при [illegible] сигналов.

7

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

32471
S/044/61/000/010/037/051
C111/C222

16.7000 (1403)

AUTHORS: Fleyshman, B.S., Linkovskiy, G.B., and Sindler, Yu.B.

TITLE: On the question of the optimal statical estimation of the characteristics of a communication channel with a multi-ray propagation

PERIODICAL: Referativnyy zhurnal. Matematika, no. 10, 1961, 29, abstract 10 V 178. ("Sb. tr. Nauchno-tekhn. o-vo radiotekhn. i elektrosvyazi im. A.S. Popova", 1959, vyp 3, 34-42)

4

TEXT: The authors consider the same situation as in the preceding paper of the authors (abstract 10 V 176) ; the notations of this abstract are used but another problem is given. The actual value of λ is assumed to be known. An estimation for the dispersion of the "multiplicative" component of the noise $\alpha_i(t)$ is sought. Under the same assumptions as in the mentioned paper the authors use the method of the maximal credibility and the momentum method for the determination of the estimation of dispersion. The case where not all processes $\alpha_i(t)$ are equally

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On the question of the optimal statical ...C111/C222

distributed and there exists a process $\alpha_1(t)$ the dispersion of which is greater than for all other $\alpha_i(t)$ is considered separatedly. Some examples are considered. The remarks on the unclearness of the formulations made in abstract 10 V 176 (as well as the remark of the reviewer with respect to this abstract) hold also for the present paper.

[Abstracter's note : Complete translation.]

Card 2/2

32469

16.7000 6,7000 S/044/61/000/010/035/051
C111/C222

AUTHORS: Siforov, V.I., Fleyshman, B.S., and Linkovskiy, G.B.

TITLE: The optimal reception of a parameter which is transferred through a channel with noises containing multiplicative, additive and time components

PERIODICAL: Referativnyy zhurnal. Matematika, no. 10, 1961, 29, abstract 10 V 176. ("Sb. tr. Nauchno tekhn. o-vo radiotekhn. i elektrosvyazi im. A.S. Popova", 1959, vyp. 3, 3-17)

TEXT: The authors consider the transfer of the signal $f_\lambda(t)$ ($f_\lambda(t)$ is a not random known function of the time depending on the parameter λ) through a multiray channel at the outlet of which the signal

$$y(t) = \sum_{i=1}^{k} \alpha_i(t) \cdot f_\lambda\left[t - \tau_i(t)\right] + \nu(t)$$

is obtained, where $\nu(t)$, $\alpha_i(t)$, $\tau_i(t)$ are independent random processes which are called the additive, multiplicative and time compo-

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nents of the noise. It is assumed that the processes $\alpha_i(t)$ and $\tau_i(t)$ for different indices i are equally distributed and that $k \gg 1$. It is demanded that the parameter λ can be estimated in virtue of the realization $y(t)$ on a certain time interval. From $y(t)$ the authors go over to values taken in discrete lattice points $t_1 \ldots t_n$ and they assume that the values of each of the considered processes are independent in the points t_i and t_j $(i \neq j)$. The for the estimation it is proposed to use the method of the maximal credibility and the momentum method. The equation for the maximal credibility is written, where the conditions under which it is deduced are formulated very unexact so that the limits of applicability of the obtained results remain unclear. Beside of general remarks on the known properties of the estimations of maximal credibility the authors give concrete examples in which further properties of these estimations are discussed.

Reviewer's remark : The authors assume that the independence of the values

The optimal reception of a parameter ...

of the processes $\alpha_i(t)$, $\tau_i(t)$, $\gamma(t)$ is guaranteed if the distances $t_{i+1} - t_i$ are chosen greater than the minimal correlation interval of the considered processes. It is evident that for this aim $t_{i+1} - t_i$ must be chosen at least greater than the maximal one of these intervals.

[Abstracter's note : Complete translation.]

Card 3/3

6.9500 25010 S/044/61/000/003/011/014
C111/C333

AUTHOR: Fleyshman, B. S.

TITLE: Construction of an optimal code in the sense of Shannon in the simplest case of a binary channel with noises

PERIODICAL: Referativnyy zhurnal, Matematika, no. 3, 1961, 10, abstract 3V51. (Sb. tr. Nauchno-Tekhn. o-vo radiotekhn. i elektrosvyazi im. A.S. Popova, 1959, vyp 3,59-95)

TEXT: Up to the recent time only the existence of codes has been proved which are optimal in the sense of Shannon, i. e. which in presence of noises allow the transmission of $M \leq 2^{nc}$ chains of n terms with probability of correct decoding $P_n \to 1$ $(n \to \infty)$, where c is the carrying capacity of the channel. In the article the constructive structure of a code optimal in the sense of Shannon is carried out for the first time (for the case of a binary symmetric channel with memory zero). The author considers a communication channel which transforms the input signals 0,1 with probability q independently of each other into the same output signals 0,1 and with probability p = 1 - q into the opposite output signals 1,0. Here the conditional probability $P_x(E) = P(y \in E(x))$ is defined for every n-term chain of

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Construction of an optimal code . . . 25010 S/044/61/000/003/011/014 C111/C333

input signals $x = (\alpha_1, \ldots, \alpha_n)$ and for every set E of chains of the output signals $y = (\beta_1, \ldots, \beta_n)$ $(\alpha_i, \beta_i = 0, 1)$. The following notions are introduced: 1.) The set E of output chains represents (does not represent) the input chain x, if $P_x(E) \to 1(0)$ for $n \to \infty$. 2.) The input chains $x_1, \ldots, x_M$ are called different, if there are sets $E_1, \ldots, E_M$ representing them, such that every intersection $E_i \cap (\bigcup_{j \neq i} E_j)$ does not represent the corresponding chain x_i. The decomposition of the totality of possible output chains into the sets $E_1, \ldots, E_M$, which represent M distinguishable input chains $x_1, \ldots, x_M$, is called code. Under given code one can assert, when the output chain $y \in E_i$ occurs that the chain x_i was at the input, where the assertion is correct with a probability tending to 1 for $n \to \infty$. A code which contains the maximally possible number of distinguishable input chains was called optimal by Shannon. It is known that for

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channels of considered type these maximum number is not greater than $2^{n[1-h(p)]}$, where $h(p) = -\log_2 [p^p(1-p)^{1-p}]$. In the paper an asymptotically optimal code is constructed, for which as set representing every input chain x the set of all output chains y is chosen, for which the number of symbols $(\beta_1, \ldots, \beta_n)$ which differ from the corresponding symbols $(\alpha_1, \ldots, \alpha_n)$ of the input chain x, is not greater than $[n(p+\varepsilon)]$, where square brackets mean the integer part of the number and ε a certain small number. It is proved that the distinguishable input chains can be obtained for such a code by chossing random

$$M = 2^{n[1-2h(p+\varepsilon) - h(p-\varepsilon)]}$$

chains and then by removing a certain part of them. It is proved that the number of distinguishable input chains in the proposed code satisfies the inequality $N \geq M(1-2^{-n\gamma})$ with a probability greater than the probability of correct decoding. Therefore, if a sufficiently

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Construction of an optimal code . . . C111/C333

high probability of correct decoding is guaranteed, then one obtains with an even higher probability a code asymptotic to the optimal one. It is shown that for a relatively large $p \leqslant 0.5$ the distinguishable input chains can be simply obtained by random selection without removing a part of the chosen chains. For very small $p = \lambda/n$ the author proposes a useful modification for the construction of the asymptotically optimal code. The combinatorial method developed by the author is used in the paper (R Zh Mat, 1958, 7934). The fundamental results of the paper have been formerly published without explicit proofs (R Zh Mat, 1959, 7203).

Note of the reviewer: The review of R. Dobrushin (R Zh Mat, 1959, 7203) of the afore-mentioned paper does not reproduce what is essential in the paper and contains no reference to the fundamental result - the constructive structure of an asymptotically optimal code.
[Abstracter's note: Complete translation.]

Card 4/4

AUTHOR: Basharinov, A.Ye., and Fleyshman, B.S. SOV/109-59-4-2-1/27

TITLE: Application of the Sequential Analysis Method in the Systems with Rayleigh Signal Intensity Fluctuations (Primeneniye metoda posledovatel'nogo analiza v sistemakh dvukhznachnoy peredachi pri releyevskikh fluktuatsiyakh intensivnosti signalov)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 2, pp 155-160 (USSR)

ABSTRACT: It is assumed that the intensity of the messages fluctuates in accordance with the Rayleigh distribution law and that the background noise is of the Gaussian type. The transmission is such that passive intervals are present. The probability density for the voltage at the output of a linear detector in the absence of a signal (that is during an interval) is in the form:

$$W_{sh}(u) = 2ue^{-u^2} \quad (A)$$

where $u = \frac{v}{\sqrt{v^2_{sh}}}$.

The probability density for the output voltage in the presence of the signal is given by:

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Application of the Sequential Analysis Method in the Systems with Rayleigh Signal Intensity Fluctuations

$$W_{ssh}(u) = \frac{2u}{1 + q^2} e^{-\frac{u^2}{1+q^2}} \qquad (B)$$

where q^2 is the signal-to-noise ratio. If a matched filter is used, a voltage u_i corresponds to each elementary message. The evaluation of an ensemble of independent voltages $u_1 \ldots u_i \ldots u_n \ldots$ which correspond to various messages is performed by forming a probability coefficient L, and comparing its value with two limits A and B at each n-th step; L is given by Eq.(1) while A and B are defined by Eq.(2), where D_1 is the probability necessary for a correct reproduction of the signal of a given amplitude and F is the permissible probability of a false alarm. For the case of the Rayleigh fluctuations of the signals having an expected intensity q_1, the logarithm of the probability coefficient is given by Eq.(3). The boundaries of the duration zone of the tests are defined by the inequalities expressed by Formula (4). According to Wald (Ref.4) the

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Application of the Sequential Analysis Method in the Systems with Rayleigh Signal Intensity Fluctuations

calculation of the probability characteristics and of the average analysing time (that is the average number of the tests) requires the determination of a parameter $h(q,q_1)$. This parameter can be determined from Eq (1) which leads to Eq (6). The solution of Eq (6) can be found graphically. The characteristic of a correct reproduction of the signal, D(q), and the average number of the tests, $N_{cp}(q)$, are determined from Equations (7) and (8) where z is given by Eq (9). Typical characteristics of D and N_{cp} are shown in Fig.2 and 3. The efficiency of the method of successive analysis can be represented by coefficients which indicate the relative duration of the tests. In practical systems of sequential analysis, it is necessary to limit the duration of the tests. In this case it is important to know the distribution function of the test termination figure. An estimate of the lower probability limit of the test termination can be done by the method described by Wald (Ref 4) or by employing the Chebyshev inequality which is expressed by formula (11). In this, N denotes the upper number

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of tests and σ_N^2 is the spread of the number of tests. When $F \ll 1$ or $(1-D) \ll 1$, the spread can be determined from Eq (12). For $F \ll 1$ this leads to Eq (16) while for $(1-D) \ll 1$ this results in Eq (19). Consequently Formula (11) can be written as Eq (20). The calculated results of the estimate of the lower boundary of the probability that the tests would be terminated at a figure lower than the given one are illustrated in Fig.4. The curves denoted by I were evaluated from the Chebyshev inequality, while curves designated with II were evaluated from the Wald formulae (Ref 4). From the above analysis it is concluded that the method of sequential analysis can lead to an increased efficiency of the binary systems provided that an elementary

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message is transmitted as a train of identical elements. There are 4 figures, 1 table and 7 references of which 3 are Soviet and 4 English.

SUBMITTED: 27th May 1958

Card 5/5

S/194/61/000/010/045/082
D256/D301

AUTHOR: Fleyshman, B.S.

TITLE: Constructive proof of the Shannon's theorem in a simple binary case (Thesis)

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 10, 1961, 39, abstract 10 V369 (Tr. Vses. soveshchaniya. po teorii veroyatnostey i matem. statistiki, 1958, Yerevan, AN ArmSSR, 1960, 66-71)

TEXT: The Shannon theorem is proved for a simple type of binary channel with zero data panel. The existence of an optimum code is demonstrated and to obtaind it an algorithm is proposed.
[Abstracter's note: Complete translation]

Card 1/1

30135
S/194/61/000/007/060/079
D201/D305

16.6100 (1031, 1153)

AUTHORS: Basharinov, A.Ye., Fleyshman, B.S. and Tyslyatskiy, G.S.

TITLE: The method of consecutive analysis in problems of signal detection in multi-channel system

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 7, abstract 7 I58 (V sb. 100 let so dnya rozhd. A.S. Popova, M., AN SSSR, 1960, 76-78)

TEXT: The structure is considered of the algorithm of sequential analysis in detecting m orthogonal signals (S). The algorithm consists in forming m channels which produce particular values λ_s of the probability coefficient for the s-th form of S with consequent group weighting and comparison with the threshold. In the case of two alternatives the solution of the problem of S being present is reached with $\lambda \geq D/F$, that of S being absent with $\lambda < (1 - D)/(1 - F)$ where D - the probability of correct detection, F - probab-

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The method of consecutive...

ility of false detection. The approximate expression for the average number of sampling has the following forms: in the absence of S

$$\bar{n}_{sa}(m) \simeq \bar{n}_{sa}(1) + k\frac{\ln m}{\bar{z}_{sa}}$$

and in the presence of S

$$\bar{n}_{s}(m) \simeq \bar{n}_{s}(1) + D\frac{\ln m}{\bar{z}_{s}}$$

where $\bar{n}_{sa}(m)$, $\bar{n}_{s}(m)$, $\bar{n}_{sa}(1)$ - the average number of samplings with one and m channels respectively, $\bar{z}_{sa}$, $\bar{z}_{s}$ - the average value of the algorithm of probability ratio at the first stage of sampling with $m = 1$, k - coefficient depending on allowable probability of false solutions. The evaluation of the average duration of sampling processes was carried out on a digital computer. The values thus determined were $0.5 < k < 2$ for a probability of the signal being transmitted of $\sim 10\%$. 5 references. [Abstracter's note: Complete translation]

Card 2/2

6,9000

82866
S/108/60/015/008/003/006
B012/B067

AUTHOR: Fleyshman, B. S., Member of the Society

TITLE: On the Construction of the Transmission of a Parameter by the Optimum Decoding Method in the Presence of Nonadditive Noises

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 8, pp. 25-32

TEXT: V. A. Kotel'nikov (Ref. 1) solved the problem of an optimum reception of the parameter for a channel with normal additive fluctuation noises. The paper (Ref. 2) presents an optimum solution of the same problem for a more general case of nonadditive noises. The optimum decoding of the signal at the outlet is understood as optimum reception of the parameter. In the present paper, only the case studied in Ref. 2 is dealt with. Here, concrete and deliberately nonoptimum types of modulation are studied, and the problem of a reliable transmission of the maximum possible number of parameter values is solved. As is the case in the paper (Ref. 2) a channel with a multiwire propagation

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On the Construction of the Transmission of a Parameter by the Optimum Decoding Method in the Presence of Nonadditive Noises

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B012/B067

is studied in the presence of noises with an additive $\nu(t)$, a multiplicative $\alpha(t)$, and a time component $\tau(t)$. These components are independent of the signal and of one another. Process $\lambda(t)$ with the known probability characteristics is assumed as a source for the channel investigated. Only one time interval in which $\lambda(t) = \lambda_m = \text{const}$ is studied. The task consists in determining this constant value λ_m which is one of the possible values known before the transmission at both channel ends, out of a number M of such values. As in the paper (Ref. 2) only that case is dealt with where λ is multiplicatively contained in $f_\lambda(t)$ in the form of $X = f_\lambda(t) = \lambda f(t)$, formula (4). It is assumed that the time interval T is much larger than the maximum correlation interval Δt of all three noise components. Thus, the study of the momentary values $n = \frac{T}{\Delta t}$ of the initial process $Y = Y(t)$ warrants the independence of the random quantities Y_j ($j = 1, 2, \ldots, n$). Here, only two concrete types of the signal $f(t)$ are studied: formula (9). The problem is solved by iteration methods. In the following, the numbers M and n for the two types of

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signals are given a rough lower bound. One of the possible principal schemes of decoding for optimum parameter reception is shown and explained by a Fig. The construction of this decoding system is described in brief. For certain types of modulation it warrants a reliable transmission of the maximum possible number of parameter values in the presence of additive noises. There are 1 figure and 5 Soviet references.

SUBMITTED: May 11, 1959

Card 3/3

24862 S/109/61/006/007/002/020
D262/D306

16,8000 (1121,1132,1344)

AUTHOR: Fleyshman, B.S.

TITLE: Transient regime of memory loading of a cybernetic installation for statistical pattern reproduction

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 7, 1961, 1041 - 1048

TEXT: A particular problem in cybernetic installations for signal and picture reproduction with a background of noise, is that of analyzing the probability of the duty state of the memory whose over-filling, because of its finite capacity, is undesirable. In the present article, making a wide range of assumptions, the author obtains average dispersions and distributions of the number of busy memory elements in a transient regime. The assumptions are as follows: The cybernetic installation has an infinite number $M \to \infty$ of memory elements, to whose input a sequence of independent calls is applied. This sequence (stream) is characterized by

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a random function x(s) equal to the number of calls in a period of time $t(s < t \leqslant s+h)$, where $h > 0$ - is the step of quantisized time. It is further assumed that x(s) and x(s') are independent random variables for any $s \neq s' \geqslant 0$. A function $\nu(s)$ corresponds to every instant S, whose function determines the time of service of the call happening at instant s, counted from the moment of its appearance to the moment of end of the service. $\nu(s)$ is assumed to be independent of x(s') for all s and $s' \geqslant 0$ and has the distribution function

$$P/(\nu/(s)/< /t) = /F_s(t). \qquad (1)$$

First the case of discrete observation of a really continuous flow of calls $s = jh$, $\nu(s) = ih$ $(i, j = 0, 1, 2, \ldots, h = \text{const} > 0)$ is considered when the start and ending of calls and their service are undiscernable if between the intervals $t(s < t \leq s + h)$. Let every call be statistically analyzed (serviced) in a separate memory element until a decision of this element is reached as to whether it is a useful signal or noise. Then $\mu(t)$ is the number of elements busy at moment t and its distribution $T(\mu(t) = m)$ according to

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$P(\nu(s) < t) = F_s(t)$ is derived as

$$P(\mu(t) = m) = P_{\Lambda(t)}(m)$$

where $\Lambda(t)$ is the parameter given by

$$\Lambda(t) = E\mu(t) = D\mu(t) = \sum E\varkappa(s)\,[1 - F_s(t-s)]. \qquad (7)$$

If $\varkappa(s)$ has a Poisson distribution with parameter $\lambda(s) = E\varkappa(s) = D\varkappa(s)$. If the number of memory elements of the cybernetic installation is finite, M = const $\geq \Lambda(\infty)$, then $\mu(t)$ has the Poisson distribution of

$$P(\mu(t) = m) = P_{\Lambda(t),M}(m) = \begin{cases} \dfrac{\Lambda^m(t)}{m!} \Big/ \sum_{r=0}^{M} \dfrac{\Lambda^r(t)}{r!} & \text{for } 0 \leq m \leq M, \\ 0 & \text{for } m > M. \end{cases} \qquad (8)$$

which shows that the Erlang formula applies both to a discrete non-stationary Poisson stream and to an arbitrary time distribution of

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service (the probability of memory over-filling is equal to that of the refused call). In practice the homogeneous case is said to be of most interest when distributions $\varkappa(s) = \varkappa$ and $\nu(s) = \nu$ do not depend on time. In this case for the homogeneous Poisson stream, $\mu(t)$ has the Poisson distribution with parameter of

$$\Lambda(t) = E\mu(t) = D\mu(t) = E\varkappa \sum |1 - F(s)| < \Lambda(\infty) = E\varkappa E\nu. \qquad (11)$$

In conclusion, the analysis is made of the case when the processing of the stream of calls is continuous, i.e. when $h \to 0$ and the stream is an ordinary one

$$P(\varkappa(s) = 1) = \lambda(s)h + o(h),$$
$$P(\varkappa(s) > 1) = o(h),$$

from which it follows that

$$\Lambda(t) = \int_0^t \lambda(s) |1 - F_s(t - s)| ds, \qquad (21)$$

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which means that the distribution has the Poisson character with parameter $\widetilde{\lambda}(t)$. For a finite number $M \gg \Lambda(t)$ of memory elements $\mu(t)$ the limited Poisson distribution with parameter $\widetilde{\Lambda}(t)$ is obtained. In two appendices the theorems are given which are required for the proof of equations within the text. There are 1 figure and 11 references: 9 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: N. Wax, Signal to noise improvement and the statistics of track population, J. Appl. Phys., 1955, 26, 5, 586; A. Wald, Sequential analysis, N.Y., 1947.

SUBMITTED: June 15, 1960

(7)

[redacted]v, A. E., Moscow Institute of Radio Engineering and Electronics - "On designs for automatic recognition of patterns in noise" (Section III)

BRAYNES, S. N., and SVECHINSKIY, V. B., Biocybernetical Institute, University of Moscow - "Matrix structure in stimulating of learning" (Section VII)

DOBRUSHIN, R. L., and TSYBAKOV, B. S., Moscow Institute of Radio Engineering and Electronics - "Information transmission with additional noise" (Section XI)

FLEYSHMAN, B. S., Moscow Institute of Radio Engineering and Electronics - "Basic theorems of the constructive information theory" (Section VIII)

NAPALKOV, A. V., Chair of Higher Nervous Activity, Moscow State University - "Mechanisms of the selection of useful and trustful information" (Section IX)

REPORT to be submitted for the International Symposium on Information Theory, Brussels, Belgium, 3-7 Sep 1962

BASHARINOV, A.Ye.; FLEYSHMAN, B.S.; MONIN, A.S., doktor fiz.mat. nauk, retsenzent; ZUBAKOV, V.D., kand. tekhn. nauk, retsenzent; IVANUSHKO, N.D., red.; SVESHNIKOV, A.A., tekhn. red.

[Methods of statistical sequential analysis and their application in radio engineering] Metody statisticheskogo posledovatel'nogo analiza i ikh radiotekhnicheskie prilozheniia. Moskva, Izd-vo "Sovetskoe radio," 1962. 352 p. (MIRA 15:6)
(Mathematical statistics) (Radio engineering)

FLEYSHMAN, B. S.

"Statistical theory of finite automata reliable functioning in case of noises"

report submitted for the Intl. Symposium on Relay Systems and Finite Automata Theory (IFAC), Moscow, 24 Sep-2 Oct 1962.

S/271/63/000/003/016/049
A060/A126

AUTHORS: Barashinov, A.Ye., Fleyshman, B.S.

TITLE: Certain cybernetic problems of statistical separation of information flows

PERIODICAL: Referativnyy zhurnal, Avtomatika, telemekhanika i vychislitel'naya tekhnika, no. 3, 1963, 60, abstract 3A342 (Tr. VI Vses. soveshchaniya po teorii veroyatnostey i matem. statistike, 1960. Vil'nyus, Gos. izd-vo polit. i nauchn. lit. LitSSR, 1962, 195 - 199)

TEXT: The authors consider the statistical problems connected with the filtering of information flows, such as data, on running parameters from several control points, data on the intensity of element glow on an oscillograph screen, data for selective control of production consisting of several identical production lines, etc. The data bear a statistical character and therefore the problem consists in the fact that one has to establish reliably their actual nature through statistics. Two formulations of problems of this kind are given: the classical statistical formulation, in which within a limited time it is required to perform a decision between several statistical hypotheses and the probability

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S/271/63/000/003/016/049
A060/A126

of errors is admitted, and the cybernetic formulation, in which on the basis of comparing the realized information flow over time interval to each of a existing messages it is required to establish - with the smallest possible probability of error - what was the message sent (deterministically specified alphabet), or when the message is determined under the condition of the possibility of a simultaneous existence of several alterable messages with a stochastically specified configuration (stochastically specified alphabet). In the latter case, which is further analyzed in the work, a large number N of measurements is assumed and the presence of a cybernetic instrument with a limited storage capacity $M \ll N$. The operation of the cybernetic instrument consists in transforming the information flow from a multi-dimensional one into a single-dimensional one (periodic scanning of channels); finding the channel requiring additional analysis; accumulation of data from the selected channels found; and the analysis of data and output of results. Further, results are cited relating to the analysis of memory loading, namely: formulae are given, determining the mean value and the dispersion of the number of occupied cells $\mu(t)$ at an instant t. The cases of Poisson and Wald input flows, as well as the case when the mean value of $\mu(t)$ is large, are analyzed in greater detail. There are 10 references.
[Abstracter's note: Complete translation]

I. P.

Transactions of the 6th Conf. on Probability Theory and Mathematical Statistics and of the Symposium on Distributions in Infinite-Dimensional Spaces held in Vil'nyus, 5-10 Sep '60. Vil'nyus Gospolitizdat Lit SSR, 1962. 493 p. 2500 copies printed

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Transactions of the Sixth Conference (Cont.) SOV/6371

Transactions of the 6th Conf. on Probability Theory and Mathematical Statistics and of the Symposium on Distributions in Infinite-Dimensional Spaces held in Vil'nyus, 5-10 Sep '60. Vil'nyus Gospolitizdat Lit SSR, 1962. 493 p. 2500 copies printed

PHASE I BOOK EXPLOITATION SOV/6530

Fleyshman, Bentsion Semenovich

Konstruktivnyye metody optimal'nogo kodirovaniya dlya kanalov s shumami (Designing Methods of Optimum Coding for Noisy Channels) Moscow, Izd-vo AN SSSR, 1963. 224 p. 4200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut radiotekhniki i elektroniki.

Resp. Ed.: V. I. Siforov, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: V. F. Rzhevskiy; Tech. Ed.: T. V. Polyakova.

PURPOSE: This book is intended for scientists and engineers concerned with problems of optimal coding in noisy communication channels.

COVERAGE: Because the Shannon basic theory of noisy communication channels only suggests the existence of optimal codes but does not reveal their structure, the author describes a new analytical device developed for the purpose of

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